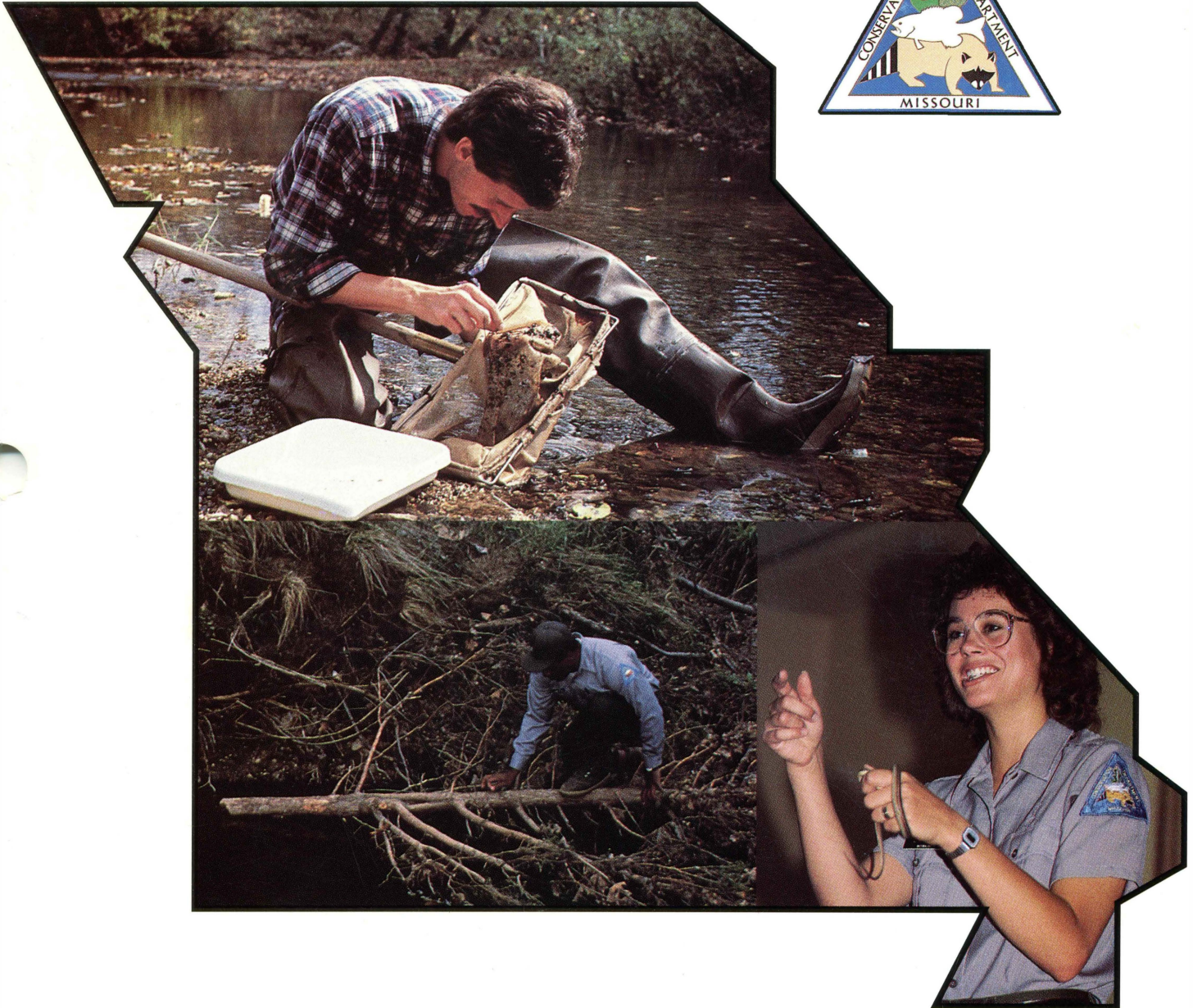


# CONSERVATION CAREERS



**A Supplement to Conservation Education Programs  
of the Missouri Department of Conservation**

# The Missouri Department of Conservation

The Conservation Commission is by law the head of the Department of Conservation, which is responsible for the control, management, restoration and conservation of all wildlife and forest resources of Missouri. The Commission appoints the Director, sets Department policy and approves budgets, regulations and real estate transactions.

The Department was created by an amendment to the Missouri State Constitution. The four Commissioners are appointed by the Governor of the state for staggered terms of six years and must be confirmed by the State Senate. No more than two may be from the same political party. The Department is free of partisan politics and is widely considered a model conservation agency. The Department is financed primarily from the sale of hunting and fishing permits and a 1/8 of 1 percent sales tax voted by the citizens of Missouri in 1976 to implement expanded conservation programs in the years ahead. The Department also receives federal aid funds from several agencies. Collectively, all funding sources support the broad-based programs of the Department, a state agency dedicated to public service and conservation.

As one of the 14 departments of state government, the Conservation Department undergoes the same budgetary appropriation process and accounting and purchasing procedures as do other state agencies. Also, the Department is audited by the State Auditor as requested by the Conservation Commission.

The Department has divisions responsible for Fisheries, Forestry, Wildlife and Protection programs. Other organizational units are responsible for Education, Engineering, Fiscal, Public Affairs, Natural History, Operations, Personnel and Planning functions.

## **Instructor Reference Manual**

# **CONSERVATION CAREERS**

**By**

**Robert Fluchel  
Conservation Education Consultant**

**Cover photos by Robert Fluchel, Jim Rathert and Mark Sullivan**

**Illustrations by David Besenger**

**A Supplement to  
Conservation Education Programs  
of the  
Missouri Department of Conservation  
Education Section**



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# Instructor Reference Manual

Conservation education encompasses all the activities and experiences which result in learning about people's dependency upon and use of natural resources to satisfy their needs and wants. Since 1941, the Missouri Department of Conservation has supported a *formal education program* through Missouri's public and nonpublic schools. This publication was developed as a reference source to supplement the Department's expanded conservation programs.

The development of this manual was a challenge involving many individuals. We are indebted to Director Jerry J. Presley and Assistant Director David D. Hurlbut for their support and encouragement. We are also indebted to Donald K. Heard, education administrator, along with Al Palladino and Charles Jordan, assistant education administrators, for their guidance and assistance.

The *Instructor Reference Manual* is dedicated to the Department's conservation education consultants, past and present. This small group of men and women have recognized education as a vital and important force in resource conservation . . . and have accepted the challenge. The conservation challenge should concern all of us, but especially those charged with educating today's youth. We hope this manual will aid Missouri teachers in meeting this challenge.

For additional information on conservation education programs, write the Education Section, Missouri Department of Conservation, P.O. Box 180, Jefferson City, MO 65102-0180.

## Title VI Notification

The Missouri Department of Conservation uses Federal financial assistance in Sport Fish and/or Wildlife Restoration. Because the state utilizes these federal funds, it must comply with federal anti-discrimination law. Under Title VI of the 1964 Civil Rights Act and Section 504 of the Rehabilitation Act of 1973, the federal government prohibits discrimination on the basis of race, color, national origin, disability, age or sex. If you believe that you have been discriminated against in any program, activity or facility as described above, or if you desire further information please write to:

The Office for Human Resources  
U.S. Fish and Wildlife Service  
Department of the Interior  
Washington, DC 20240

and

Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65102-0180

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# How to Use This Reference Manual

*Conservation Careers* advises students on how to prepare for a career in conservation. It is designed to assist secondary school counselors and teachers by providing concise and readable information not readily available from other sources.

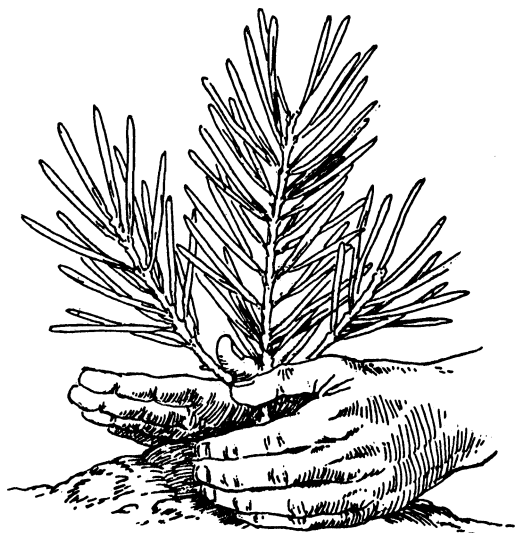
The text and appendices are designed to be photocopied and read by *students*. They may be copied without further permission as long as the Missouri Department of Conservation is credited. Counselors may want to keep several photocopies in their school guidance department's literature display rack and make them available for loan to students. Teachers may want to give photocopies of the text and appendices to students in their classes who express an interest in or make inquiry about careers in conservation.

Students often need specific advice that educators feel ill-prepared to give. Conservation is a complex, nebulous and somewhat unconventional career field. Students who aspire to be conservationists are often not easily classified with respect to traditional personality type and psychological profile testing. Many conservationists may aptly be described in the words of Henry David Thoreau: They “. . . march to the beat of a different drummer.”

Moreover, many students are misadvised to pursue a career in conservation. Students often have an unrealistic and romantic impression of what professional conservationists do and what kind of training is required. Teachers sometimes mistakenly advise students, who do poorly academically but have an interest in the outdoors, to pursue a career in conservation. Unfortunately, these students will not be able to compete in the job market. A career in conservation is not for everyone. The information provided in this booklet will correct many common misconceptions.

*Conservation Careers* provides straightforward advice and encouragement for those few students who will persevere in their pursuit of a meaningful career in this field. If students follow this advice, they will be able to make decisions based on a more realistic understanding of what is actually involved in careers related to conservation.

# Becoming a Conservationist



Conservationists care about the future of natural resources.

Are you considering a career in conservation? If you are, you probably have already developed a keen interest in the outdoors. You may feel an intimacy with the land and its wildlife. You may sincerely enjoy camping, hiking, nature study, birdwatching, gardening, planting trees, hunting or fishing. You may want to do everything you can to preserve these special pleasures for yourself, your children and your grandchildren.

In a very real sense, you may already be a conservationist. Because conservation is a philosophy—a way of life—based on common values and a concern for the future, it is both an idealistic and a practical philosophy. Conservation is defined as the wise use of natural resources. It implies living in harmony with ecological laws and sharing of limited natural resources in an equitable way. All those who subscribe to this philosophy are rightfully called conservationists.

The organized practice of conservation in our modern society demands scientifically trained professional specialists. Although these professionals are also conservationists by conviction, they have prepared themselves through college training to be experts specializing in one of many fields that in some way relate to the management of natural resources. These are professional conservationists who earn their livings by practicing their specialty.

## Determining Whether a Career in Conservation is Right For You

First, assess your interests and abilities as methodically and thoroughly as possible. Get as much information on jobs and about yourself as you possibly can. Take advantage of the many fine self-help books and psychological tests that can help you explore your interests, assess your abilities and understand yourself better (see Appendix 1). Your teachers, guidance counselors and school librarians can help you.

## Talking to a Professional Conservationist



Talk with a professional conservationist in a field related to your interest.

If you are still considering a career in conservation after you have thoroughly assessed your interests, it is time to go directly to the most knowledgeable source for some practical counseling. Seek out and get to know someone in the field. Start by talking with your biology teacher. He or she can probably give you some sound advice and direct you to a professional conservationist in a field related to your interests. You will find most professionals will be glad to visit with you. But remember, most conservationists have busy schedules, so please arrange your visit well in advance.



Conservationists tend to be realistic people. They often have inquisitive minds and many genuinely enjoy talking and sharing ideas and feelings. Many have been trained as scientists. Please do not hesitate to talk *openly* with these professionals. (An interview sheet in Appendix 2 may serve as a useful tool to help you ask pertinent questions.)

## **Preparing for a Career in Conservation**

There are several things you can do now to begin preparing for a career in conservation. First, recognize that you don't become a resource professional overnight. The process is gradual, taking many years of concentrated study and experience, and often lengthy and demanding technical training. You must patiently prepare yourself in a step-by-step fashion, one day at a time, for whatever specialty you will eventually choose. Enjoy your training and make the most of your education, learning something new every day.

## **Beginning in High School**

There are five major things you need to do throughout high school:

1. Learn to communicate well. Take courses in the language arts. Develop your writing and speaking abilities. You cannot overestimate the importance of these skills. They can open many doors for you.
2. Take as many math and science courses (especially biology, chemistry, physics and computer studies) as you can.
3. Get good grades—As and Bs. Your grades will make a difference in this competitive field.
4. Establish your reputation as an honest, reliable and positive person.
5. Save money for college. Work part time. Look into scholarships, loans and grants of all kinds to ease the financial burden.

## **Preparing for College**

Almost all responsible professional positions in conservation require at least a bachelors degree from an accredited college or university. Correspondence courses seldom fulfill the academic requirements of most employers.

Although your choice of a college will be based on many things—degree programs offered, location, cost, philosophy, et cetera—all colleges will urge you to apply for admission





A good college education will prepare you to work in your field.

and for financial aid (scholarships, loans, et cetera) *as early in your senior year in high school as possible*. Take the standardized college entry exams, Scholastic Aptitude Test (S.A.T.) and American College Testing Assessment (A.C.T.), as early in your junior year as possible. Apply to at least three colleges early in the fall of your senior year. A list of major colleges and universities offering training in the conservation field is contained in the National Wildlife Federation's *Conservation Directory* that is published annually. Check your library or write the National Wildlife Federation to purchase a copy (see Appendix 1 for address).

Your choice of college is important. You must decide where to apply during your junior year of high school. If you already have a career goal—such as forestry—in mind, your choice is much simpler than if you are undecided on a specialty. Choose a school with a good forestry program. In order to identify these, ask professional foresters for their recommendations. Write to the Society of American Foresters for a list of colleges that offer a forestry degree in your region of the country. There are many other professional societies that offer similar information (see Appendix 3).

After you have reviewed and selected some prospective colleges, write to each requesting information on programs, admissions, scholarships, loans and housing. Do this early in your junior year. Don't procrastinate.

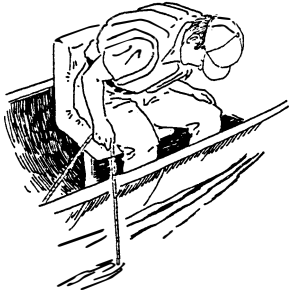
If you are somewhat undecided on a specialty, but feel strongly that your career interests lie in some specialty within the field of conservation, try to choose a school with a strong biology department or with an emphasis in ecology and field biology. Colleges with field stations and extensive research facilities are often good prospects to investigate. Look for a school that will offer other related programs in resource management that will help you sample various specialized fields of knowledge related to conservation: forestry, fisheries, wildlife management, park administration, law enforcement, outdoor education, recreation, environmental engineering and others. There is no need to panic if you are somewhat undecided. You will have ample time and some guidance while in college to help you decide on a specialty.

## Specializing in College

It now becomes difficult to advise you in general terms. By this point, you may become aware of the enormous range of specialties and specialists that exist within professional conservation career fields. Although your first two years of college will concentrate somewhat on general studies, this is the time for testing your interests and abilities. It is a time to look down many paths and decide which you will take. For many people this is also a time to backtrack and try a different path before proceeding further toward their eventual specialty in the conservation field.

#### Common Major Fields of Study:

Conservation  
Biology  
Zoology  
Wildlife Management  
Fisheries Management  
Botany  
Forestry  
Law Enforcement  
Park Administration  
Agriculture  
Environmental Sciences



### Furthering Your Education

Let it happen! Pursue *your* interests. Life is filled with trial and error. Socrates once said, "Know thyself. To thine own self be true." Many students are swayed from pursuing their greatest career interest by the opinions of friends, parents and sweethearts. Although those who care most about you are good sources of advice and counsel, don't listen too much to others. Chart your own course! Believe in yourself and follow your interests, even if they lead down unexpected and difficult paths.

Early in your sophomore year, reevaluate the college you have chosen. If the college doesn't offer the program in which you are most interested, the best time to transfer to a college that does is at the end of your sophomore year. During your junior and senior years, it's important to be at a college that offers strong courses in your chosen specialty. Seek advice on where to go from professors you know and trust. Early in your college career, consider joining a professional society that is appropriate for your specialty. Special low-cost student memberships are usually available.

Perhaps it is a little early to talk about advanced studies beyond your bachelors degree, but here is a word to the wise: **Go to school for as long as you can.** Get the best education you can afford while you are young. It may not be possible to do so later.

Many professional conservationists have, or are working on, masters degrees and some with highly specialized interests (especially in research or college teaching) have doctorates in their field. Set your goals high and try to stay in school long enough to get the degree or degrees you will need to be competitive in your chosen field.

### Developing Secondary Skills

Develop strong secondary skills that complement your major field of study.



While you are majoring in a field that applies to your chosen specialty, do not neglect areas of secondary interest. Job applicants with knowledge and skills in related fields can often distinguish themselves from others and secure the position they desire.

For example, suppose two applicants with a degree in wildlife management were considered to be equally qualified for a given position with a conservation agency. If one had some training and practical experience in the field of computer science while the other did not, who do you think would be selected? Although it is difficult to generalize, in such a case it is wise to avoid over-specializing.

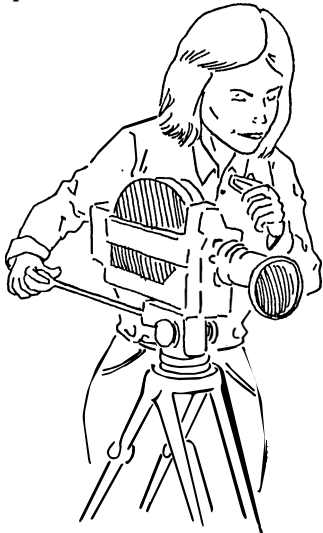
In conservation, there are many complementary fields of study that are relevant in preparing for your chosen specialty. Many conservationists feel that a secondary skill they possess enabled them to secure their current position. In future job

markets, almost everyone will be expected to be familiar with the basics of computer language and use. The ability to write, speak, draw or photograph can also help your career. Knowledge of hunting and fishing are valuable skills for wildlife and fisheries specialists. Mechanical, electrical or agricultural skills might be valuable to some.

It may be possible that your unique set of secondary skills will lead you to be employed in a position that few others could fill as well. Ask those in the specialties that interest you what secondary skills or knowledge contribute to doing their job well (see Appendix 4).

## Considering Support Professions

Photographers blend talent with technical skill and patience in order to capture wildlife on film.



An engineer reviews site plans. Equal opportunity programs have increased the number of minority individuals in conservation professions.



Conservation agencies and organizations hire a limited but significant number of professional people who are not specifically trained to be conservationists. Engineers, architects, planners, statisticians, accountants, personnel managers, attorneys, editors, writers, public relations specialists and teachers are employed in limited numbers to provide the professional support services necessary to manage and operate a modern-day conservation agency.

Although many of these professional people never intended to specialize in or earn their livings as professional conservationists, they make major contributions in their own way to the conservation effort.

It is important to recognize a potential pitfall at this point. Occasionally, an individual attempts to use a side-door entrance to what are traditionally considered conservation careers. For example, suppose a student aspires to be a wildlife area manager. He or she majors in business in order to avoid the difficult scientific curriculum and intense competition for jobs that is inherent in the wildlife management field. He or she surmises that it may be easier to get hired by a conservation agency by securing an accounting position and then transferring to the wildlife division. This strategy seldom works.

If you want to be a wildlife area manager, approach it directly. It is unlikely that a person without the proper credentials, training and experience would be reassigned to another unrelated position.

On the other hand, recognize that course work in business may possibly be beneficial for someone who *majors* in wildlife management, especially if they aspire to advance to administrative positions later in their career.

## Exploring other Conservation Vocations

Occupations that do not require a bachelors degree from a four-year college or university are generally classified as conservation support occupations or vocations. These include

carpenters, electricians, maintenance people, mechanics, heavy equipment operators, area aides, towermen, firefighters, surveyors and others. Natural resource agencies also employ many secretaries, clerks, office managers and other skilled trades too numerous to list. People in these jobs carry out the work planned and implement the decisions made by those in management and professional positions. These conservation vocations include widely varied jobs. Some involve hard work, high levels of physical activity and much time spent outdoors.

If you are interested in preparing for these jobs, go to school at a junior college, trade school or business college that will prepare you for your chosen specialty and get as much practical experience as possible.

## Locating Organizations that Hire Conservationists



Researchers usually have earned doctorates in their field.

Most conservation jobs are in governmental agencies: federal, state, county and city governments (see list and addresses of potential employers in Appendix 5).

Federal agencies that hire professional conservationists include: the Department of Interior (Fish and Wildlife Service, National Park Service, Bureau of Land Management); Department of Agriculture (Forest Service, Soil Conservation Service); Department of Defense (Corps of Engineers, Army, Navy, Air Force); Department of State; Department of Commerce; and the Environmental Protection Agency.

Missouri state agencies that hire conservationists include the Department of Conservation and the Department of Natural Resources. Relatively few conservation jobs are available in other state agencies (e.g. the University Extension Service).

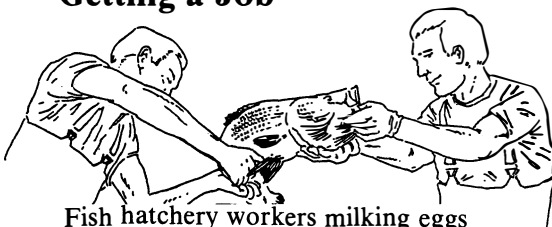
County and city governments in urban areas sometimes employ conservationists in park and recreation programs or other departments.

Teaching and research positions at colleges or universities offer another option. In these positions, a doctorate is usually required. Teaching at the high school level—especially in the fields of biology, vocational agriculture or physical education—provides opportunities to include conservation along with the other required curricula.

Nonprofit foundations, museums, zoos and community nature centers also employ conservationists. Do not overlook this part of the job market.

In the private sector, environmental consulting firms, oil and coal companies, utilities, forest products companies and other corporations that manage land and resources are all worth considering.

## Getting a Job



Fish hatchery workers milking eggs from a fish.

Most government agencies have a very formal, and often complex, way of processing job applications. In order to insure some degree of fairness in considering applicants, standardized competitive interview and testing procedures are often required.



Forestry aide harvesting a tree.

It takes patience and persistence to find, apply for and obtain a suitable position. It may take months, sometimes years, to secure a good position.

Knowing someone already employed within the organization for which you would like to work often helps. That person can keep you posted on openings and advise you on the mechanics of how people are hired in his or her agency. If you don't have a contact on the inside, make one by introducing yourself to whomever you think can help you. This is often not difficult, but it does require some confidence on your part. You will find, especially in the better organizations, that hiring practices are surprisingly impartial, with every attempt made to give everyone equal consideration based on qualifications. This does not minimize the value of personal contacts. They are important. College professors can often help make contacts. Summer jobs, volunteer work and student membership in professional societies also increase contacts.

Some people go through incredible gyrations attempting to play the angles and find shortcuts to good jobs. In general, a direct, honest approach is best. Be patient and persistent.

## Finding Fulfillment and Challenge



Most professional positions require substantial office work.

Most people want a job that is meaningful to them, one in which they can contribute something worthwhile to society. Most of all they want to enjoy what they do. You will find that most professional conservationists enjoy their work. If you ask them why, they might attribute their enthusiasm to their working environment, the people they work with or the fact that they are doing something intrinsically worthwhile. Working outdoors or inside offices, laboratories and classrooms on behalf of conserving the outdoors and its resources is inherently satisfying. Most conservationists feel fortunate to have their jobs—and in reality they are fortunate.

Conservation careers are challenging and, at times, demanding professions. The training is often long, difficult and expensive. The work schedules are often irregular and hours long. Many jobs involve hard and dirty work. Several positions carry very real occupational hazards. Working outdoors, in all kinds of weather and in rugged and often remote locations, is challenging. Heat, cold, storms, mosquitoes, chiggers, drought, floods, fires, landslides, mud, ice and snow greatly complicate the lives of resource managers. Conservationists' jobs are further complicated by the biological nature of many resources. Nature has its own schedules and those who seek to manage or interpret forests, fish and wildlife must conform to nature's schedules *first* and their own second.

It would be impossible to give detailed job descriptions for all the numerous and varied positions in conservation. However, a few brief, representative descriptions are included (see Appendix 6).



Nursery workers grading pine seedlings.

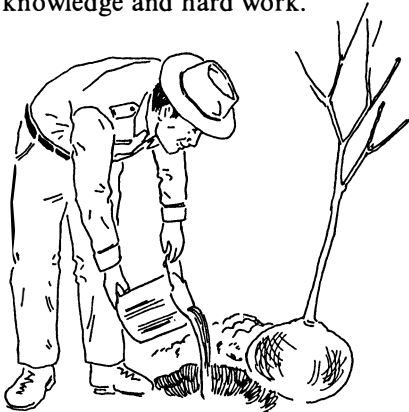
## Dealing with People



Conservation agents enjoy contact with cooperative sportsmen.



Managing resources involves both knowledge and hard work.



Do you like dealing with people? The majority of professional conservationists deal directly with the public. Although they are theoretically trained to manage natural resources, many spend most of their time managing people, which is very challenging. For example, over a time span of millions of years, the forest, fish and wildlife managed themselves quite well without people. However, resources in modern times are affected as much by humans as by nature. Historically, people have tended to deplete and destroy resources and then move on. This is no longer possible.

In today's crowded world the enormous demand for raw materials from our forests, the voracious consumption of fish and wildlife, and mindless dumping of toxic pollutants must be controlled in order to sustain a high-quality living environment.

Some conservationist vocations often have law enforcement responsibilities. For example, conservation agents, park rangers and environmental control officers are charged with enforcing laws enacted by the government to protect natural resources. Law enforcement is often a difficult, frustrating and sometimes dangerous endeavor. Dealing with individuals who have contempt for the law and animosity for the officials charged with enforcement is never easy. Strong and dedicated individuals are needed.

On the other hand, most conservationists are very quick to point out that dealing with people is also a favorite part of their jobs! Most people who have a real interest in conservation are enjoyable to work with and many wholeheartedly support and assist professional conservationists. People who practice ethical hunting and fishing are among the most enthusiastic individuals in the world. The great majority of hikers, backpackers, campers, birdwatchers and nature enthusiasts are enjoyable companions. There is a feeling of fellowship among outdoor enthusiasts. There is a great deal of good-natured camaraderie that contributes to job satisfaction.

If you are not highly extroverted, don't assume there is no place in conservation for you. There are some jobs that suit the introvert as well. But the majority of jobs fit sociable individuals.

## Contending with the Limited Number of Jobs

If you aspire to a career in conservation, this section may be a bitter pill to swallow. It is best that you do not labor under the delusion that all those who wish to become professional conservationists can find the employment they

desire. The supply of would-be professionals is much greater than the supply of jobs. Competition is stiff. Most good position openings in this field have over a hundred applicants. The positive side of competition is that those who are hired are highly qualified—the real achievers. The negative side is that it is often difficult even for bright, well-trained people to find jobs in their field. Once you have accepted this reality, you can begin to deal with it.

A career in conservation is not for everyone. If you discover that another career field is better, you will still have an interest in conservation to fall back on in recreational pursuits. Enjoying the outdoors and joining the ranks of voluntary conservationist groups can often fulfill your need to participate in the conservation movement. Moreover, many of the greatest conservationists throughout history made their living doing something else and practiced conservation as an avocation rather than a vocation. This is a viable option for everyone.

## Previewing Salaries and Fringe Benefits



A biologist identifies seed samples.

Are you willing to live simply? The truth is that most professionals in careers related to conservation earn modest salaries. They are comparable to those earned by educators. This is not to say that you cannot earn a comfortable living or even make it to a middle class income level after many years of experience, but you will never grow rich on a conservationist's salary.

It is difficult to list example salaries in a publication of this type. The figures are often obsolete before they are published and distributed, but some representative salary ranges for conservation related positions are easily obtained from the following sources: *A Survey of Compensation in the Fields of Fish and Wildlife Management* published by the National Wildlife Federation and *Opportunities in Environmental Careers* by Odom Fanning published by VGM Career Horizons (see Appendix 1).

Because the majority of conservation career positions are within governmental agencies, you can write directly to the personnel department of state or federal agencies for current information and salary ranges on any given position or group of positions that interest you. Salaries paid to government employees are a matter of public record and may be found in the reference section of most libraries. For example, all state employee salaries are listed in the *Official Manual, State of Missouri* published annually by the Secretary of State.

In general, the best paying jobs are in the strongest and most visible agencies and organizations. On a national basis, jobs with the federal government usually pay more than those at the state level and state positions pay more than those on a county or city level. But there are many exceptions to this general statement.

Fringe benefits vary greatly, but generally include individual health and life insurance and a conservative retirement plan.





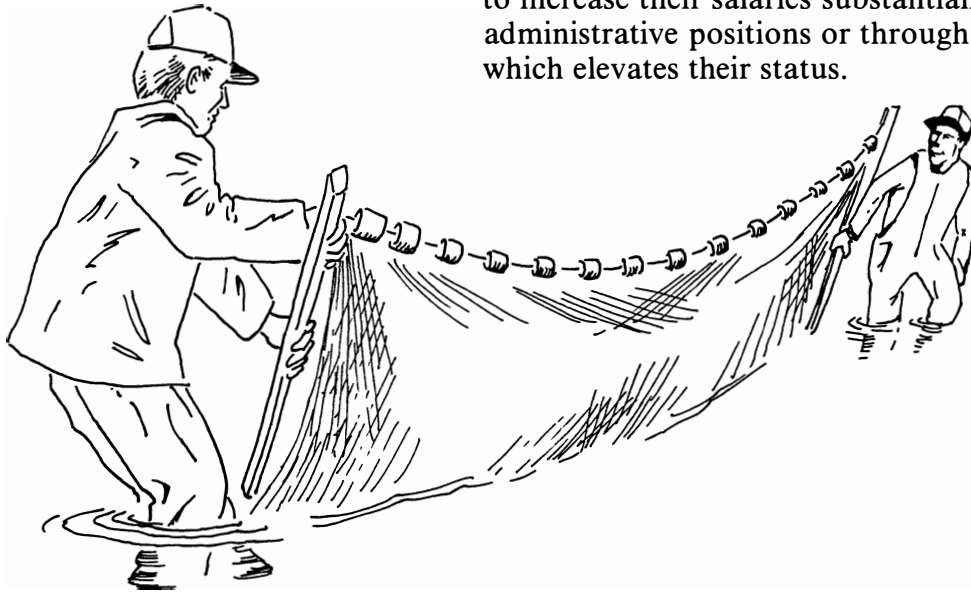
A botanist records plant data.

Vacation and holiday allowances are generally above average in most government related positions.

Jobs in the private sector usually pay more and have as good or better fringe benefits, but have fewer holidays and less job security.

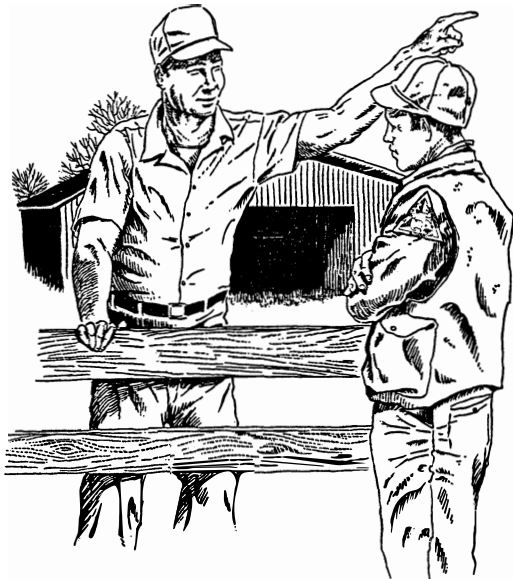
Jobs in nonprofit organizations pay less, offer few fringe benefits and are seldom very secure. However, in well-funded, nonprofit organizations, the compensation and fringe benefits are sometimes generous and job security is good.

Supply and demand determine salaries. If there were few conservation professionals and a great demand for their services, salaries would be high. Unfortunately, that has never been the case and no one can reasonably predict that things will change in the future. The only real hope professional conservationists have to increase their salaries substantially is through promotions to administrative positions or through a change in societal values which elevates their status.



Fisheries biologists survey aquatic life and manage the fisheries resource.

## Accepting the Location of Employment



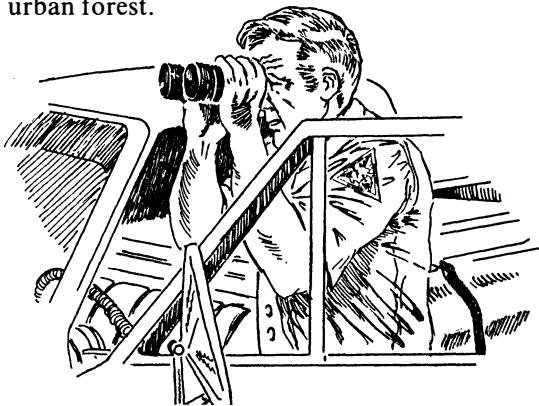
A wildlife biologist advises a farmer.

Professional conservationists live in diverse (and sometimes unusual) locations. They are literally dispersed all over the country: in remote natural areas, in small towns and in metropolitan areas. In general, conservationists are located where they are needed. They are concentrated in areas that have natural resources of economic value or in areas where there are large numbers of people to serve.

You might correctly expect to find more foresters employed in the largely wooded southern half of Missouri than in agricultural northern Missouri, or more in the forested mountain states of Montana or Colorado than in the plains of South Dakota. Conservationists, like many other professionals, must consider the regional nature of the job market for their specialty and take a practical approach. If you want to live and work in Missouri, it would not be advisable to specialize in marine biology. There are not many cases of shark bite in Kansas City.



A naturalist talks to visitors at an urban forest.



Conservation agents patrol remote areas in pursuit of fish and game violators.

Many conservationists in Missouri live and work in urban areas where natural resources are in short supply but users of natural resources are in large supply. People in urban areas are very interested in and demanding of services offered by conservation agencies.

Conservationists theoretically go where they are needed. But do they? Not everyone is willing to move. However, in order to obtain a professional position or in order to advance in position or salary, mobility is often required. If you are unwilling to move, you will severely limit the career opportunities available to you.

Having established a field or specialty and having earned the respect of your colleagues and supervisors, you may eventually be able to relocate closer to your chosen locale, but sometimes at your own expense. There are always trade-offs. You will find that you are usually in an employers' job market and you may have to make some hard decisions concerning where you and your family are willing to live. No one can advise you here. Only you can decide where your long-term priorities lie.

## Considering Your Unique Identity and Your Future

*Always you have been told that work is a curse and labor a misfortune.*

*But I say to you that when you work you fulfill a part of earth's furthest dream, assigned to you when that dream was born.*

*And in keeping yourself with labor you are in truth loving life,*

*And to love life through labor is to be intimate with life's inmost secret.*

*From The Prophet  
by Kahlil Gibran*

Who are you? Where are you going? With whom would you like to travel? What would you like to accomplish along the way? These are challenging questions for anyone at any age. And yet, as you live day by day, you attempt to answer them by actively directing the course of your life.

Do you want to pursue a career in conservation? This is a valid question, one which this publication attempts to help answer by instructing you in general terms on how to prepare for a career as a conservationist and what to expect once your training is complete.

It does not glamorize the field, for the glamour is self-evident to you or you would not have read this in the first place. It does not chart a course for you, because that is your responsibility and privilege. But it does point you in some general directions and to some very specific resources and activities that will help you find your way.

What will your occupation be? We know people by their works. And in the final analysis, you could do worse than to invest your life's work on behalf of conservation.

# Appendix 1

## Suggested Readings

### General Career Guidance

Bolles, Richard N., *What Color Is Your Parachute?* 2nd ed., Ten Speed Press, Berkeley, California, 1984.

Holland, John L., *Making Vocational Choices: A Theory of Careers*, Prentice-Hall, Englewood Cliffs, New Jersey, 1973.

Hopke, William E. (ed.), *Encyclopedia of Careers and Vocational Guidance*, 7th ed., 3 vols., J.G. Ferguson Publishing Co., Chicago, 1987.

### Conservation Career Guidance

Clepper, Henry (ed.), *Careers in Conservation*, 2nd ed., Natural Resources Council of America, John Wiley and Sons, New York, 1979.

Fanning, Odom, *Opportunities in Environmental Careers*, VGM Career Horizons, National Textbook Company, Lincolnwood, Illinois, 1986.

Kempers, Bert A. (ed.), *Career Report: Wildlife and Fisheries Career Opportunities*, West Wind Productions, Inc., Boulder, Colorado, 1987.

*Conservation Directory*, (for current year) National Wildlife Federation, 1412 Sixteenth Street, N.W., Washington, D.C. 20036.

*A Survey of Compensation in the Fields of Fish and Wildlife Management*, (for current year) National Wildlife Federation, 1412 Sixteenth Street, N.W., Washington, D.C. 20036.

## Appendix 2

### Interview Guide Sheet

Interview conducted by: \_\_\_\_\_

Person interviewed: \_\_\_\_\_

Name: \_\_\_\_\_ Interview date: \_\_\_\_\_

Title: \_\_\_\_\_ Interview time: \_\_\_\_\_

Employer: \_\_\_\_\_ Place: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

\_\_\_\_\_

Please describe your main duties, beginning with the most important.

Where do you perform your duties?

What is your regular work schedule?

How many hours a week do you work? Is overtime expected?

What holidays and how much vacation do you have?

What do you like best about your job?

What things do you dislike about your job?

Do you supervise any people? How many?

What are your supervisory duties?

What types of people do you come into contact with while working?

What salary range exists for people in your field?

What fringe benefits are customary for people in your field?

What opportunities for advancement are available to you?

Do you belong to any professional organizations that you would recommend to a young person?

What colleges do you recommend?

What degree is necessary to be competitive in your field? Would an advanced degree be useful?

What secondary skills and abilities are helpful to people in your field?

Is there any additional advice you can give me?

## Appendix 3

### Professional Societies

Write to the following organizations to request further information about the specific career field in which you have an interest. Consider requesting current guidance brochures, lists of colleges and universities that offer degrees in the specialty, requirements for certification, student membership information and dates and locations of any upcoming regional conferences that you might attend to learn more about the profession.

Many of these organizations have Missouri state chapters. Addresses of Missouri chapters are not included here because they change frequently, but the address may usually be obtained from the national counterpart. By becoming active as a student member in the state chapter of these societies, you may begin to make valuable personal contacts.

Society of American Foresters  
5400 Grosvenor Lane  
Bethesda, MD 20814

American Fisheries Society  
5410 Grosvenor Lane  
Bethesda, MD 20814

The Wildlife Society  
5410 Grosvenor Lane  
Bethesda, MD 20814

National Association of  
Interpretation  
P.O. Box 1892  
Fort Collins, CO 80522

Society for Range Management  
1839 York Street  
Denver, CO 80206

Soil and Water Conservation  
Society  
7515 N.E. Ankeny Road  
Ankeny, IA 50021

National Recreation and Parks  
Association  
3101 Park Center Drive  
Alexandria, VA 22302

Outdoor Writers Association  
of America  
2017 Cato Avenue  
Suite 101  
State College, PA 16801

## Appendix 4

### Secondary Skills Activity Sheet

1. Mark the appropriate blank for each skill:

Skills	I have no interest or ability	I have in- terest but no ability	I have limited ability	I have much ability
Driving	_____	_____	_____	_____
Typing	_____	_____	_____	_____
Operating computers	_____	_____	_____	_____
Writing	_____	_____	_____	_____
Public speaking	_____	_____	_____	_____
Teaching	_____	_____	_____	_____
Drawing	_____	_____	_____	_____
Painting	_____	_____	_____	_____
Photography	_____	_____	_____	_____
Carpentry	_____	_____	_____	_____
Mechanical repairing	_____	_____	_____	_____
Electrical	_____	_____	_____	_____
Surveying	_____	_____	_____	_____
Drafting	_____	_____	_____	_____
Farming	_____	_____	_____	_____
Camping	_____	_____	_____	_____
Orienteering	_____	_____	_____	_____
Hunting	_____	_____	_____	_____
Fishing	_____	_____	_____	_____
Trapping	_____	_____	_____	_____
Boating	_____	_____	_____	_____
Swimming	_____	_____	_____	_____
Taxidermy	_____	_____	_____	_____
Birdwatching	_____	_____	_____	_____
Operating audio-visual equipment	_____	_____	_____	_____

2. Make a list of those at which you want to become proficient:

3. Based on your discussions with teachers, counselors and professional conservationists, list those skills that are most relevant to your career interest:

4. State how you intend to improve the three skills that you think you most need to work on at this point:

## Appendix 5

### Employers

The following agencies are the major employers of professional conservationists in Missouri. Write for further information.

Missouri Department of Conservation  
P.O. Box 180  
Jefferson City, MO 65102-0180

Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102

University Extension Service  
University of Missouri and Lincoln University  
801 Clark Hall  
Columbia, MO 65211

Missouri Department of Agriculture  
P.O. Box 630  
1616 Missouri Blvd.  
Jefferson City, MO 65101

Soil Conservation Service  
U.S. Dept. of Agriculture  
Washington, D.C. 20250

Forest Service  
U.S. Dept. of Agriculture  
Washington, D.C. 20250

Fish and Wildlife Service  
U.S. Dept. of the Interior  
Washington, D.C. 20240

National Park Service  
U.S. Dept. of the Interior  
Washington, D.C. 20240

Bureau of Reclamation  
U.S. Dept. of the Interior  
Washington, D.C. 20240

Bureau of Land Management  
U.S. Dept. of the Interior  
Washington, D.C. 20240

U.S. Environmental Protection Agency  
4th and M Streets, S.W.  
Washington, D.C. 20460

U.S. Defense Department  
Pentagon  
Washington, D.C. 20301

National Marine Fisheries Service  
U.S. Dept. of Commerce  
Washington, D.C. 20235

National Oceanic and Atmospheric  
Administration  
U.S. Dept. of Commerce  
Washington, D.C. 20235



## Appendix 6

### Representative Position Descriptions

The following brief descriptions summarize information from widely varied positions to provide a sampling of the diverse responsibilities assigned to various jobs in the conservation career field. Each description also presents the minimal educational requirement necessary to qualify for that specific job. Finally, each job description indicates the most likely employers for persons specializing in that position.

#### Example 1: Conservation Agent

**Purpose:** To enforce the laws relating to fish and wildlife and to serve as general representative of a conservation department (or fish and game department) in a given county or region.

**Responsibilities:**

1. Providing law enforcement including conducting field patrol, checking hunting and fishing activity, investigating reported violations, apprehending and assisting with the prosecution of alleged wildlife code violators.
2. Assisting with fisheries, forestry and wildlife management including pollution investigations, farm pond management, community lake and public access point management, wildlife censuses, investigation of wildlife damage control complaints, habitat improvement, wildlife disease investigation, management of hunting and fishing areas, forest development on private lands, fire prevention and control in forested areas.
3. Providing information and education by attending meetings of adult sportsmen's clubs, youth and school groups, teaching hunter safety and attending various media and public events such as fairs, exhibits and various civic gatherings.

**Educational Requirements:**

Bachelor's degree in law enforcement, forestry, fisheries management, wildlife management or related biological science.

**Primary Employers:**

State conservation, wildlife, fisheries or fish and game departments, U.S. Fish and Wildlife Service.

#### Example 2: Fisheries Biologist

**Purpose:** To guide and coordinate the management of the fisheries resource in a given region.

**Responsibilities:**

1. Conducting and applying field and laboratory research on the life history, behavior and ecological requirements of aquatic organisms, especially fish.
2. Investigating fisheries problems in public and private waters. Collecting, analyzing and interpreting data. Recommending and implementing steps to remedy problems in fish production.
3. Analyzing public use of the aquatic resource and the need for various stocking procedures. Arranging for transportation and stocking of fish.
4. Selecting, caring for and repairing equipment.
5. Conducting informational programs for the general public and various conservation personnel.

**Educational Requirements:**

Master's degree in fisheries management, zoology, biology or closely related field.

**Primary Employers:**

State conservation, wildlife, fisheries or fish and game departments; U.S. Fish and Wildlife Service, U.S. Department of Commerce and private industry.

**Example 3: Wildlife Area Assistant Manager**

**Purpose:** To assist the area manager with the operation and maintenance of a wildlife management area.

**Responsibilities:**

1. Facilitating use by the public including hunters, fishermen and non-consumptive users.
2. Constructing and maintaining facilities for hunters such as duck blinds and goose pits. Erecting signs and maintaining boats and other equipment.
3. Issuing reservations and maintaining records.
4. Supervising and/or performing maintenance of wildlife food plots, farming implements, roads, buildings and other public facilities.
5. Supervising the activity of laborers, negotiating grazing and sharecropping agreements with cooperating farmers and ranchers.

**Educational Requirements:**

Bachelor's degree in wildlife management, zoology, biology, agriculture or closely related field.

**Primary Employers:**

State conservation, wildlife, fisheries or fish and game departments; U.S. Fish and Wildlife Service, private game preserves.

**Example 4: Assistant Resource Forester**

**Purpose:** To guide and coordinate the management of forest resources in a given region.

**Responsibilities:**

1. Conducting resource inventories of private and public lands, including interpreting aerial surveys, measuring and evaluating the condition and marketability of timber stands.
2. Guiding the harvesting and planting of trees including arranging and supervising the sale and removal of timber.
3. Developing timber stand improvement plans for public and private lands which will enable better tree growth, timber production and improved marketability.
4. Conducting forest insect and disease surveys and recommending control and prevention measures.
5. Developing and implementing forest fire prevention, detection and suppression programs.

**Educational Requirements:**

Bachelor's degree in forestry.

**Primary Employers:**

State conservation or forestry departments, U.S. Forest Service, U.S. Soil Conservation Service, U.S. Dept. of Interior (various agencies), counties and cities, university extension services and private industry.

**Example 5: Interpretive Naturalist**

**Purpose:** To coordinate the natural interpretive program and facilities at an interpretive center, natural area or park.

**Responsibilities:**

1. Conducting the natural history interpretive program and facilities at an interpretive center, natural area or park.
2. Conducting guided hikes, lectures and workshops for all age groups, emphasizing the flora and fauna of an area.
3. Coordinating school group visitation.
4. Planning, constructing and maintaining exhibits and displays, including live animal care.
5. Developing interpretive literature, trail guide booklets and audio-visual presentations.
6. Writing newsletters and scheduling activities.

**Educational Requirements:**

Bachelor's degree in biology, zoology, botany, environmental education or related field.

**Primary Employers:**

State conservation departments, park departments at national, state and local levels, non-profit conservation foundations and community nature centers.

**Example 6: Park Superintendent**

**Purpose:** To manage and supervise the operations of a park.

**Responsibilities:**

1. Supervising, scheduling and directing the park staff.
2. Directing the construction, maintenance and repair of campsites, roads, trails, utilities, picnic areas, beaches and all other buildings and grounds.
3. Preparing fiscal and park use statistical reports and accounts for all park user fees.
4. Patrolling park to enforce rules and assure safety.
5. Meeting the public to provide information and to explain programs and policies.
6. Overseeing the recreational, educational and all other park programs.

**Educational Requirements:**

Bachelor's degree in park and recreation management, wildlife management, forestry, biological sciences or related field.

**Primary Employers:**

National, state, county and city park systems.

## **Example 7: Outdoor Writer**

**Purpose:** To inform the public about natural resource subjects and issues through the written word.

**Responsibilities:**

1. Developing articles for conservation magazines, including research, writing and editing.
2. Writing speeches, slide and film scripts, press announcements and other media related work.
3. Writing and editing various publications used within an agency such as reports, newsletters, booklets and fliers.
4. Writing books for publication.
5. Assisting with the publication of educational materials.

**Educational Requirements:**

Bachelor's degree in journalism, English or a field related to conservation.

**Primary Employers:**

Public affairs or information and education sections of state conservation departments, publishing firms and many other diverse organizations.

## **Example 8: Soil Conservationist**

**Purpose:** To provide technical assistance to landowners concerning soil and water conservation.

**Responsibilities:**

1. Developing and interpreting soil surveys and maps which are used to determine suitability of land for various uses.
2. Recommending and designing soil erosion control measures for farmers, ranchers, developers and public land managers, such as grade stabilization structures, grassed waterways, terraces and conservation tillage.
3. Consulting with other agency professionals to assist in solving flooding, erosion, sedimentation, pollution and other environmental problems.

**Educational Requirements:**

Bachelor's degree in agriculture, agronomy, engineering, geology, forestry or related field.

**Primary Employers:**

U.S. Soil Conservation Service, U.S. Forest Service, National Park Service, U.S. Bureau of Reclamation, engineering firms.

